

# BACnet PICS AI-24

**Date:** 07. 12.2009  
**Vendor Name:** MBS GmbH  
**Product Name:** BACnet I/O module AI-24  
**Product Model Number:** AI-24  
**Application Software Version:** 1.0  
**Firmware Revision:** 1.2  
**BACnet Protocol Version:** 1  
**BACnet Protocol Revision:** 4

## Product Description:

The MBS AI-24 module is a highly reliable BACnet Analog-Input module supporting 16 channels PT1000 and 8 channels 0-10V analog input.

The module supports all standardized BACnet MS/TP baud rates from 9600 up to 76800 bit/s. The modules may run in MS/TP master and slave mode.

## BACnet Standardized Device Profile (Annex L):

- ☐ BACnet Operator Workstation (B-OWS)
- ☐ BACnet Building Controller (B-BC)
- ☐ BACnet Advanced Application Controller (B-AAC)
- ☒ BACnet Application Specific Controller (B-ASC)
- ☐ BACnet Smart Sensor (B-SS)
- ☐ BACnet Smart Actuator (B-SA)

## List all BACnet Interoperability Building Blocks Supported (Annex K):

**DS-RP-B** Data Sharing-ReadProperty-B  
**DS-WP-B** Data Sharing-WriteProperty-B  
**DS-COVU-B** Data Sharing-ChangeofValue Unsolicited-B  
**DM-DDB-B** Device Management-DynamicDeviceBinding-B  
**DM-DOB-B** Device Management-DynamicObjectBinding-B  
**DM-DCC-B** Device Management-DeviceCommunicationControl-B  
**DM-RD-B** Device Management-ReinitializeDevice-B

The fixed password for DeviceCommunicationControl and ReinitializeDevice services is: "BACnet-MBS-GmbH" encoded in the ANSI X3.4 character set.

## Segmentation Capability:

- ☐ Segmented requests supported Window Size: -
- ☐ Segmented responses supported Window Size: -

## Data Link Layer Options:

- ☐ BACnet IP, (Annex J)
- ☐ BACnet IP, (Annex J), Foreign Device
- ☐ ISO 8802-3, Ethernet (Clause 7)
- ☐ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ☐ ANSI/ATA 878.1, RS-485 ARCNET (Clause 8) baud rate(s) \_\_\_\_\_
- ☒ MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 76800

- ☒ MS/TP slave (Clause 9), baud rate(s): 9600, 19200, 38400, 76800
- ☐ Point-To-Point, EIA 232 (Clause 10) baud rate(s) \_\_\_\_\_
- ☐ Point-To-Point, modem, (Clause 10) baud rate(s) \_\_\_\_\_
- ☐ LonTalk, (Clause 11) medium: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_

#### **Device Address Binding:**

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)

- ☐ Yes
- ☒ No

#### **Networking Options:**

- ☐ Router, Clause 6
- ☐ Annex H, BACnet Tunneling Router over IP
- ☐ BACnet/IP Broadcast Management Device (BBMD)
  - ☐ Does the BBMD support registrations by Foreign Devices?

#### **Character Sets Supported:**

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

- ☒ ANSI X3.4
- ☐ IBM™/Microsoft™ DBCS
- ☐ ISO 8859-1
- ☐ ISO 10646 (UCS-2)
- ☐ ISO 10646 (UCS-4)
- ☐ JIS C 6226

#### **If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:**

No gateway functionality yet.

#### **Remarks:**

If set to slave mode, the supported Device Profile is reduced to B-SA.

The BIBB DS-COV-U-B is not supported in slave mode.

The BIBB DM-DCC-B supports infinite lifetime only.

The BIBB DM-RD-B supports both cold-start and warm-start.

The BIBBS DM-DCC-B and DM-RD-B are supported with the optional password only. The fixed password is: "BACnet-MBS-GmbH".

## Standard Object Types Supported:

The supported object-types are DEVICE (**BACnetObjectType** ::= ENUMERATED 8) and Analog-Input (**BACnetObjectType** ::= ENUMERATED 0).

Creation and Deletion of objects is not supported.

### Device Object Type

Property Identifier	Property Datatype	1	2
Object_Identifier	BACnetObjectIdentifier	R	W
Object_Name	CharacterString (max. 16 characters)	R	W
Object_Type	BACnetObjectType	R	R
System_Status	BACnetDeviceStatus	R	R
Vendor_Name	CharacterString	R	R
Vendor_Identifier	Unsigned16	R	R
Model_Name	CharacterString	R	R
Firmware_Revision	CharacterString	R	R
Application_Software_Version	CharacterString	R	R
Location	CharacterString	O	-
Description	CharacterString	O	-
Protocol_Version	Unsigned	R	R
Protocol_Revision	Unsigned	R	R
Protocol_Services_Supported	BACnetServicesSupported	R	R
Protocol_Object_Types_Supported	BACnetObjectTypesSupported	R	R
Object_List	BACnetARRAY[N]of BACnetObjectIdentifier	R	R
Max_APDU_Length_Accepted	Unsigned (max. 50)	R	R
Segmentation_Supported	BACnetSegmentation	R	R
Max_Segments_Accepted	Unsigned	O	-
VT_Classes_Supported	List of BACnetVTClass	O	-
Active_VT_Sessions	List of BACnetVTSession	O	-
Local_Time	Time	O	-
Local_Date	Date	O	-
UTC_Offset	INTEGER	O	-
Daylight_Savings_Status	BOOLEAN	O	-
APDU_Segment_Timeout	Unsigned	O	-
APDU_Timeout	Unsigned (10.000 ms)	R	R
Number_Of_APDU_Retries	Unsigned (5)	R	R
List_Of_Session_Keys	List of BACnetSessionKey	O	-
Time_Synchronization_Recipients	List of BACnetRecipient	O	-
Max_Master	Unsigned (127)	O	R
Max_Info_Frames	Unsigned (1)	O	R
Device_Address_Binding	List of BACnetAddressBinding (empty)	R	R
Database_Revision	Unsigned (1)	R	R
Configuration_Files	BACnetARRAY[N] of BACnetObjectIdentifier	O	-
Last_Restore_Time	BACnetTimeStamp	O	-
Backup_Failure_Timeout	Unsigned16	O	-
Active_COV_Subscriptions	List of BACnetCOVSubscription	O	-
Slave_Proxy_Enable	BACnetArray[N] of BOOLEAN	O	-
Manual_Slave_Address_Binding	List of BACnetAddressBinding	O	-
Auto_Slave_Discovery	BACnetArray[N] of BOOLEAN	O	-
Slave_Address_Binding	List of BACnetAddressBinding	O	-
Profile_Name	CharacterString	O	-
Baud rate (proprietary 701)	UNSIGNED: 9600, 19200, 38400, 76800	O	W
MAC-address (proprietary 702)	UNSIGNED: 0-127 master, 128-254 slave	O	W

1 = BACnet Conformance Code 135-2004

2 = BACnet Conformance Code AI-24

R = Required + Readable

W = Writable

O = Optional

- = Not supported

## Analog-Input Object Type

Property Identifier	Property Datatype	1	2
Object_Identifier	BACnetObjectIdentifier (1-24)	R	R
Object_Name	CharacterString (max. 16 characters)	R	W
Object_Type	BACnetObjectType	R	R
Present_Value	REAL	R <sup>1</sup>	R <sup>1</sup>
Description	CharacterString (max. 16 characters)	O	W
Device_Type	CharacterString (max. 16 characters)	O	W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-
Out_Of_Service	BOOLEAN	R	W
Update_Interval	Unsigned	O	-
Units	BACnetEngineeringUnits	R	W <sup>1</sup>
Min_Pres_Value	REAL	O	-
Max_Pres_Value	REAL	O	-
Resolution	REAL	O	-
COV_Increment	REAL	O2	W
Time_Delay	Unsigned	O3	-
Notification_Class	Unsigned	O3	-
High_Limit	REAL	O3	-
Low_Limit	REAL	O3	-
Deadband	REAL	O3	-
Limit_Enable	BACnetLimitEnable	O3	-
Event_Enable	BACnetEventTransitionBits	O3	-
Acked_Transitions	BACnetEventTransitionBits	O3	-
Notify_Type	BACnetNotifyType	O3	-
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O3	-
Profile_Name	CharacterString	O	-
DS-COVU-B (proprietary 700)	BOOLEAN: FALSE=no COV, TRUE=COV-U	O	W

R<sup>1</sup> = Writable if OutOfService is TRUE

W<sup>1</sup> = Unit is writable for Analog-Input channels no. 17-24 (0-10V inputs), possible values are: 5 (volts) and 124 (millivolts).

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